

In re: David B. Slater, Jr.
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Amendments to the Claims:

1. (Currently Amended) A method for forming an ohmic contact to silicon carbide for a semiconductor device, the method comprising:

implanting phosphorus atoms into a surface of an n-type silicon carbide substrate thereby forming a layer on the silicon carbide substrate having an increased concentration of phosphorus;

thereafter annealing the implanted silicon carbide substrate; and

thereafter growing at least one epitaxial layer on a surface of the silicon carbide substrate opposite the implanted surface; and

thereafter depositing a layer of metal on the implanted surface of the annealed silicon carbide that forms an ohmic contact between the phosphorus-implanted silicon carbide and the deposited metal.

2. (Original) A method according to claim 1 comprising implanting the phosphorus at room temperature.

3. (Cancelled)

4. (Cancelled)

3 ~~5.~~ (Original) A method according to claim 1 wherein the first annealing the implanted silicon carbide substrate occurs at a temperature between about 1000°C and 1300°C.

4 ~~6.~~ (Original) A method according to claim 1, wherein the implanted silicon carbide substrate is annealed at a temperature at or above about 1000°C.

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- 5/ (Original) A method according to claim 1, wherein the implanted silicon carbide substrate is annealed at a temperature at or above about 1300°C.
- 6/ 8. (Original) A method according to claim 1 wherein the metal is selected from the group consisting of titanium, aluminum, nickel, silver and platinum.
- 7/ 9. (Original) A method according to claim 1 wherein the metal has a work function equal to or lower than the work function of platinum.
- 8/ 10. (Original) A method according to claim 1 wherein said implanted phosphorus forms a zone of increased carrier concentration in said silicon carbide substrate.
- 9/ 11. (Original) A method according to claim 8/ 10 wherein said concentration of phosphorus progressively decreases away from said surface.
- 10/ 12. (Original) A method according to claim 8/ 10 wherein said concentration of phosphorus is approximately level for a predetermined thickness in said silicon carbide substrate.
- 11/ 13. (Original) A method according to claim 8/ 10 wherein said zone of increased carrier concentration is at least about 1000 Å thick.
- 12/ 14. (Original) A method according to claim 1 comprising implanting phosphorus at a plurality of implant energy levels.
- 13/ 15. (Original) A method according to claim 1 comprising implanting phosphorus at an implant energy level of 25 keV at a dose of 10^{15} cm⁻² or more.

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AI *cancel* ¹⁴16. (Original) A method according to claim ¹³~~15~~ further comprising implanting phosphorus at an implant energy level of 50 keV at a dose of 10^{15} cm⁻² or more.

¹⁵17. (Original) A method according to claim ¹⁴~~16~~ further comprising implanting phosphorus at an implant energy level of 100 keV at a dose of 10^{15} cm⁻² or more.

18-33 (withdrawn)

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